

September 17, 2001  
1999 P 03694 WO  
PCT/DE00/03504

- 8 -

DE0003504

Patent claim

1. A vacuum contactor having a contactor housing (1),  
a drive coil (2), an armature (3), an operating element  
5 (4) and at least one vacuum contact,  
- with the drive coil (2) deflecting the armature  
(3) from an armature rest position (AR) to an  
armature operating position (AB) when a pull-in  
current (IA) is applied,  
10 - with the deflection of the armature (3) causing  
the operating element (4) to be deflected from an  
element rest position (ER) to an element operating  
position (EB), and  
- with the deflection of the operating element (4)  
15 resulting in closing of the at least one vacuum  
contact,  
- with, when the armature (3) is deflected from the  
armature rest position (AR) to the armature  
operating position (AB), the armature (3) first of  
20 all passing through an initial movement distance  
(sV), and then passing through a driving movement  
distance (sM),  
- with the operating element (4) being deflected by  
the armature (3) only while the latter is passing  
25 through the driving movement distance (sM),  
- with the operating element (4) always either  
remaining in the element rest position (ER) or  
being deflected completely to the element  
operating position (EB) when a current that is  
30 less than the pull-in current (IA) is applied to  
the drive coil (2).

while it is passing through the driving movement distance (sM), and in that the initial movement force (FV) is less than the driving force (FM).

- 5     5.     The vacuum contactor as claimed in claim 4,  
characterized  
in that the ratio of the initial movement force (FV) to  
the driving force (FM) is between 1:10 and 1:2.
- 10    6.     The vacuum contact as claimed in claim 5,  
characterized  
in that the ratio of the initial movement force (FV) to  
the driving force (FM) is between 1:5 and 1:4.
- 15    7.     The vacuum contactor as claimed in claim 4, 5  
or 6,  
characterized in that the initial movement force (FV)  
is applied by an initial movement spring device (6),  
and the driving force (FV) is applied by a driving  
20    spring device (7), in that the initial movement spring  
device (6) is supported firstly on the armature (3) and  
secondly on the operating element (4), and in that the  
driving spring device (7) is supported firstly on the  
operating element (4) and secondly on the contactor  
25    housing (1).
8.     The vacuum contactor as claimed in one of the  
above claims,  
characterized  
30    in that the operating element (4) has a stop (12),  
against which the armature (3) is moved when it is  
deflected from the armature rest position (AR).